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COMPLICATIONS

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Biliary

A study of misadventure data relating to laparoscopic surgery shows that the injury most frequently associated with the procedure is damage to the common bile duct, followed by perforation of the small bowel and perforation of the colon. Injuries occur most often during gall bladder operations, with exploratory laparoscopy coming second. The data are contained in a report from the Physicians Insurers Association of America, which draws on information from 19 medical insurance companies, including the Medical Defence Union, under a data sharing project. Fifteen companies are from the United States and four are from Canada, the United Kingdom, and the Republic of Ireland.

Failure to identify the injury once it occurred was a key factor in the severity of the outcome. In over two thirds of the incidents examined, the injury was not identified until some time after the conclusion of the procedure. In some cases that delay led to serious complications, such as peritonitis and sepsis.

Cholecystectomy injuries were not recognised before the conclusion of the surgery in 83% of claims. Injuries that were recognised tended to be vascular in nature, whereas visceral injuries causing complications were more likely to remain unrecognised until after the end of surgery.

Laparoscopy inexperienced hand has no significant complications

INTRAOPERATIVE COMPLICATIONS

Cardiovascular

- * . Hypotension

From decreased venous return, could be avoided by maintaining intraabdominal pressure during the procedure below 15mmHg

- * . Arrhythmias ; occur in quarter to half of the patients, could be avoided by maintaining intraabdominal pressure during the procedure below 15mmHg

Pulmonary

- * Hypoxemia

Occur in procedures need head down and extra insufflation of the peritoneum

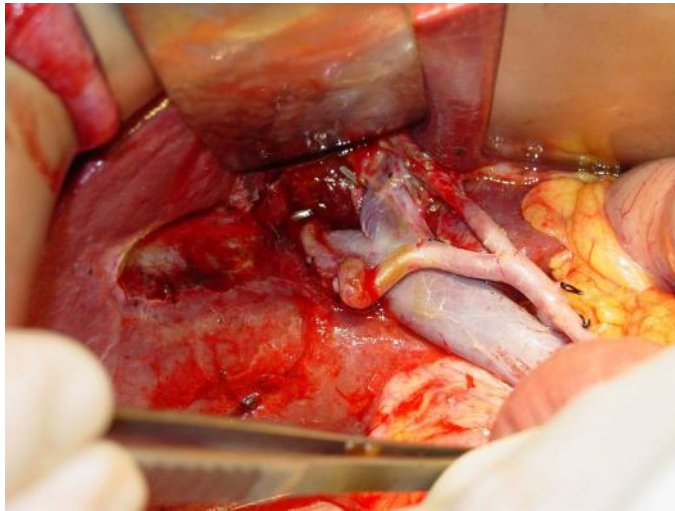
- * Hypercarbia

Due to ventilation-perfusion mismatch absorption of CO₂ , could be avoided by monitoring partial pressure of CO₂ in the blood and respiratory gas of the patient by capnogram

- * Aspiration

Could be avoided by cuffed endotracheal tube

duct anatomy, and recognition of injury may be delayed



Repaired right hepatic duct

Classification of the biliary tract injuries, during. laparoscopic

Types A–E injuries are illustrated. Type E injuries are subdivided according to the Bismuth classification.²¹ Type A injuries originate from small bile ducts that are entered in the liver bed or from the cystic duct.

Difficulty in visualising the anatomical structures during laparoscopic surgery was a contributing factor to these types of adverse incident. Trocars were the most common type of device causing injury.

Early reports indicated that the laparoscopic bile duct injury rate could be substantially higher than that seen with open cholecystectomy. Later reports, however, recorded improvements, most bile duct injury rates now being comparable to that expected with open cholecystectomy. Vascular and bowel injury can occur during placement of gas insufflation needles or access ports. Death or severe morbidity may result from the subsequent blood loss, gas embolism, or sepsis. The incidence of vascular and bowel injuries and gas embolisation can be minimised by techniques avoiding needle placement in the direction of major vascular structures and by the use of open port introduction techniques such as Hasson's cannula.

Common Bile Duct Injury

Ranges from 0.3-0.5%, the true incidence is probably higher . injury usually occurs during early experience of the operator ,risk of injury increases if there is difficulty in identifying the bile

Incidence of Iatrogenic CBD injury is .,۱۲% and .,۰۰% during open and laparoscopic cholecystectomy respectively

* Visual psychological studies has shown that laparoscopic surgeon works on snap interpretation by brain and success or disaster depends on whether snaps are right or wrong

* Snap interpretation will be wrong if there is:

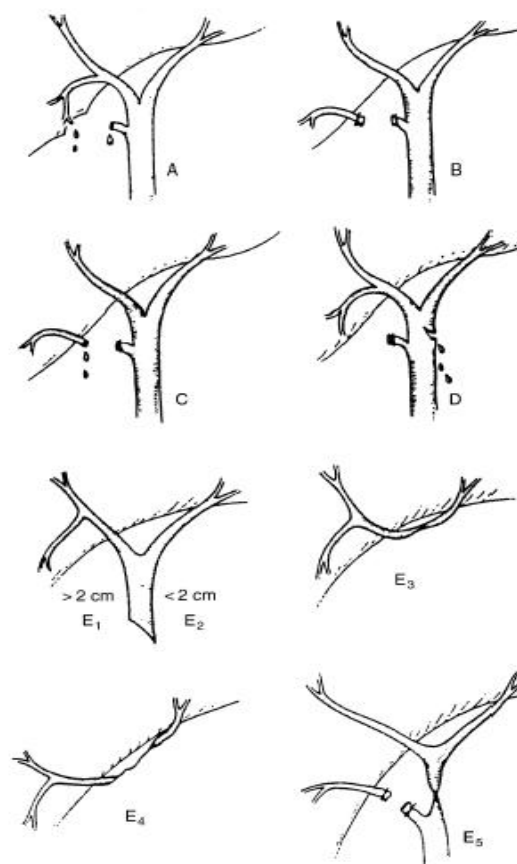
1. Eye ball degradation
2. Lack of Initial identification and memory of key structure to the point of absolute certainty.
3. Most important technical error is hilar bleeding and frantic attempts are made to control bleeding by electrosurgery.

To avoid injuries we must follow golden rules of cholecystectomy , one of these is exploration of Callots triangle before cutting any tissue >

Types B and C injuries almost always involve aberrant right hepatic ducts.

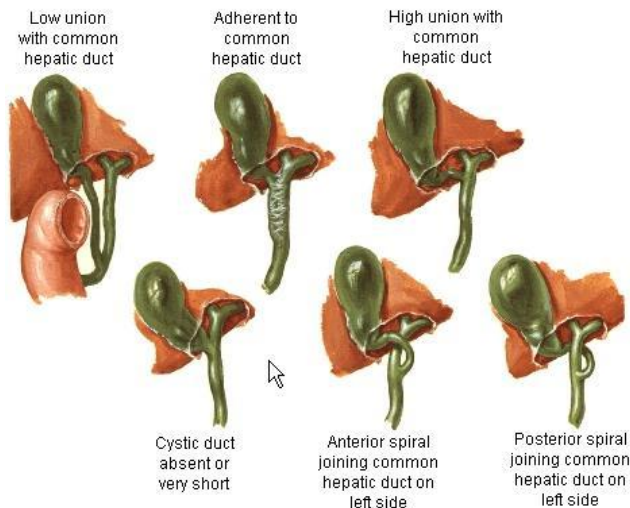
Types A, C, D and some type E injuries may cause bilomas or fistulas

Type B and other type E injuries occlude the biliary tree and bilomas do not occur. (After Strasberg *et al.*,1 with permission.)

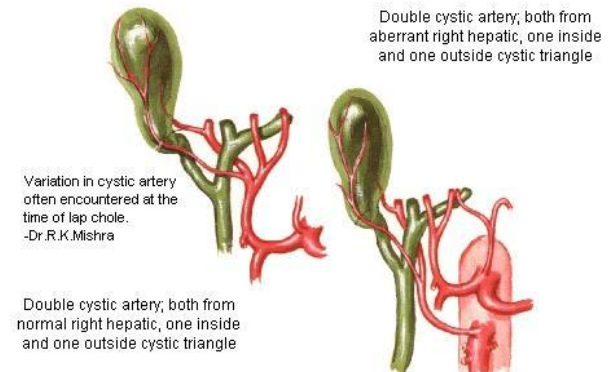
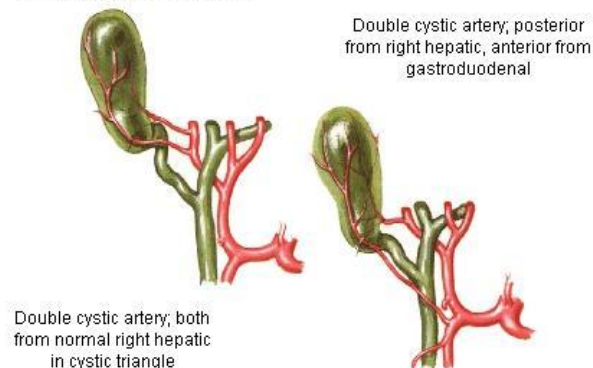


presence of normal variations in the artery or the duct will increase the chance of injury . In the following we try to show the most common types to be searched for:

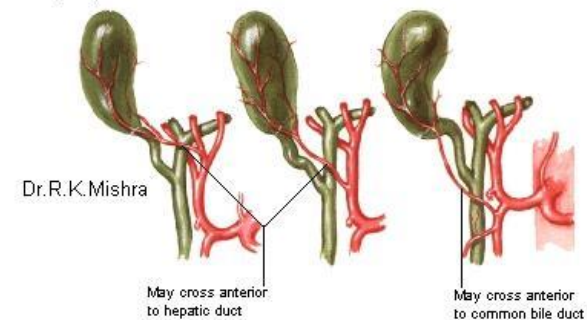
Variation in cystic duct -Dr.R.K.Mishra



All these variation in cystic artery should must be remembered. Dr.R.K.Mishra.



Variation in cystic artery is often found at the time of lapchole
May originate from intermediate (or left) hepatic May originate from proper hepatic May originate from gastroduodenal



during LC. Whenever possible all spilled gallstones should be retrieved. However, if this is not possible, irrigation of the surgical area together with a short course of oral antibiotics seems to be effective in preventing potential complications.

Others

* Subcutaneous Emphysema

Avoided by right insertion of Veress needle

* Bilateral eye hemorrhage

To our knowledge, this is the first case reporting a bilateral eye hemorrhage. This fact seems to confirm that the main cause involved is an increase in venous blood pressure due to carbon dioxide insufflation. The other causes such as hypercarbia (during peritoneal resorption), sevoflurane (which reduces intraocular pressure known to increase the risk of intraocular Vascular rupture) are probably of a lesser importance. This postoperative complication is probably underestimated, because only a macular obstruction is symptomatic. The recovery is frequently complete from a few days to a few months .

Fall of gall stones

During difficult operations, the gallbladder may be inadvertently entered and stones spilled into the peritoneal cavity. Once gallbladder puncture has occurred and stones are lost then some are usually irretrievable, but it may be better to extract all the remaining stones into a bag before proceeding. In order to reduce the missing of stones. Stones left in the abdomen usually give no trouble.

Gallbladder perforation during laparoscopic cholecystectomy (LC) occurs in up to 40% of patients. Gallbladder perforation may result in spillage of bile and gallstones. If the spilled gallstones cannot be cleared from the peritoneal cavity, excessive effort to find and retrieve the stone or conversion to the open approach is not recommended because many clinical and experimental studies have shown minimal or no harm

Gallbladder perforation with spillage of bile and gallstones is to be expected in some patients

Wound infection

The incidence of surgical infections after laparoscopic cholecystectomy is reported to be <2%, because of the minimal trauma due to this approach.

POST-OPERATIVE COMPLICATIONS

Port site hernia

There reported cases specially when the periumbilical port site overstretched in help of gallbladder extraction

The fascial defect of 10mm trocar not needs closure, on theoretical grounds alone we cannot see the closure of 1 cm defect 354

Ecchymoses of the abdominal wall



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